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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

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(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P-02501-PCT		FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/SE 2003/000049	International filing date (day/month/year) 17.01.2003	Priority date (day/month/year) 21.01.2002	
International Patent Classification (IPC) or national classification and IPC B66C 13/46, B66C 13/08, A01G 23/00, G05D 3/18 // E02F 3/36			
Applicant Indexator AB et al			

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
 - ☒ (sent to the applicant and to the International Bureau) a total of 2 sheets, as follows:
 - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

- This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input checked="" type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand 11.08.2003	Date of completion of this report 29.03.2004
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Mariana Eddin/EK Telephone No. +46 8 782 25 00

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE 2003/00049

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☒ This report is based on a translation from the original language into the following language English, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
- ☒ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-5 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____

- ☒ the claims:
- pages _____ as originally filed/furnished
- pages* _____ as amended (together with any statement) under Article 19
- pages* 1-2 _____ received by this Authority on 26.03.2004
- pages* _____ received by this Authority on _____

- ☒ the drawings:
- pages 1-3 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE 2003/00049

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-9</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-9</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-9</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The claimed invention relates to a rotator (10) for jib-carried tools (1), for example tree working units, and a method pertaining to a rotator for such tools. For rotators for co-action with tools carried on the ends of crane arms or jibs for instance, hoses and possibly also cables are arranged in a rational manner in respect of the driver of the vehicle. The driver must constantly be on his/her guard with regard to the choice of tool rotation, so as to avoid hose breakages. The object of the present invention is to provide a rotator, which will significantly simplify the work required from the driver of the vehicle and that will also enable a high degree of automation to be achieved. According to the invention, the rotator or its surroundings includes means for determining the relative position of rotation between rotor and stator making it possible to limit the rotation of the rotor and to enable a high degree of automatisisation.

In the International Search Report the following documents of special relevance were cited:

D1: US 5071184 A
D2: US 4042272 A
D3: NL 9301243 A
D4: JP 6156970 A

D1 and D3-D4 show examples of rotary units of cranes with means for determining the relative position of rotation between rotor and stator while D2 shows a hydraulic grab, for excavators, cranes or the like, mounted to a rotator and shows construction details concerning the supply of pressure medium to the rotary unit and to the tool.

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. VI Certain documents cited

1. Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
WO 0218714 A1, P	07/03/2002	29/08/2001	29/08/2000

2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: Box V

The document D1 is regarded as being the closest prior art.

From D1 a rotary unit for cranes is known. The rotary unit is intended for a cable lifting mechanism and includes a stator in the form of a pulley block body (11) and a rotor in the form of a grappling element (15). The rotary unit (1) includes a relative position sensor (40) for determining the relative position of rotation between rotor (15) and stator (11).

The subject-matter of the amended claims 1-9 differs from D1 in that the rotator is hydraulically driven and connected to a tip of the jib or arm via a link arrangement and to a jib-carried tool, and in that the means provided for measuring the relative position between rotor and stator makes it possible to limit the rotation of the rotor and to enable a high degree of automatisisation.

In this type of crane, where a hydraulic rotator is connected to the tip of the jib by a link arrangement, problems arise since hoses and possibly also cables are arranged in a rotational manner in respect of the driver of the vehicle and there is always a risk of hose/cable breakage caused by tool rotation. To provide such a rotator with means to determine the relative position of rotation between rotor and stator, thus making it possible to limit the rotation of the rotor and to enable a high degree of automatisisation avoiding the risk of hose/cable breakage, will significantly simplify the work required from the driver of the vehicle.

None of the documents cited in the International Search Report, or any relevant combination of them reveals the invention defined in the amended claims 1-9.

Furthermore, in the cited documents there are no suggestions leading a person skilled in the art towards the invention defined by these claims.

Therefore, the invention claimed in the amended claims 1-9 is novel, involves an inventive step and has industrial applicability.